

Mineral Industry Surveys

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COBALT IN OCTOBER 1999

U.S. consumption of cobalt during January through October 1999 was basically the same as that during the same period in 1998, according to the U.S. Geological Survey. U.S. imports of cobalt metal and cobalt contained in chemicals were 8% higher during January through September 1999 than imports during the same period in 1998. Exports of unwrought cobalt and cobalt contained in chemicals during January through September 1999 were 19% lower than exports during the same period in 1998. Trade data for October 1999 will be available in a subsequent issue.

Note

With the exception of prices, all data in this report have been rounded to no more than three significant digits. Totals and percentages were calculated by using unrounded data.

Update

On December 3, the Defense National Stockpile Center (DNSC), U.S. Department of Defense, announced that it planned to offer cobalt cathode rather than cobalt granules and rondelles during its December 15 sale (Defense National Stockpile Center, 1999c). The cathode was produced by Zambia Consolidated Copper Mines Ltd.'s Chambishi Mine during 1984-1985, and was purchased under National Stockpile Purchase Specification P-13-R5 grade B, which required a minimum of 99.65% cobalt (Defense National Stockpile Center, 1999a). On December 17, DNSC announced that it had awarded 301 metric tons (663,320 pounds) of cobalt cathode at a total value of \$8.6 million. The following companies were awarded cobalt: Charter Trading, Ltd., Chicago,

IL, Remelt Sources Inc., Cleveland, OH, SFP Metals (UK), Ltd., London, England, Tricor Group, LLC, New York, NY, and Voss Metals, Inc., Rockford, IL (Defense National Stockpile Center, 1999b). The next cobalt bid opening is scheduled for January 26, 2000. Further information on DNSC's cobalt sales program is available from DNSC's contracting officer for cobalt, Jennifer Iribarren, at (703) 767-5487.

Price

Prices for electrolytic cobalt, in dollars per pound, from Platt's Metals Week are listed below.

<u>Week ending</u>	<u>Price range</u>
November 19	14.00-15.00
November 26	14.00-15.00
December 3	14.00-15.00
December 10	14.00-15.00

<u>Month</u>	<u>Average price</u>
November	14.69

References Cited

- Defense National Stockpile Center, 1999a, Amendment no. 001 to invitation for bids for cobalt DLA—Cobalt cathodes—001: Fort Belvoir, VA, Defense National Stockpile Center amendment, December 3, 23 p.
- 1999b, Stockpile accepts cobalt bids: Fort Belvoir, VA, Defense National Stockpile Center news release, December 17, 1 p.
- 1999c, Stockpile announces sale of cobalt cathodes: Fort Belvoir, VA, Defense National Stockpile Center news release, December 3, 1 p.

TABLE 1
U.S. REPORTED CONSUMPTION OF COBALT MATERIALS 1/

(Metric tons, contained cobalt)

Period	Metal 2/	Oxide and other chemical compounds 3/	Scrap	Total
1998:				
January-October r/	3,140	1,650	2,500	7,290
January-December 4/	3,780	1,950	2,980	8,710
Year 5/	4,240	1,860	3,080	9,180
1999:				
January	308	192	248	748
February	326	156	250	733
March	330	180	255	765
April	303	182	249	734
May	320	153	254	728
June	327	194	248	768
July	306	141	257	704
August	311	154	257	721
September	299 r/	164	249	712 r/
October	310	136	250	695
January-October	3,140	1,650	2,520	7,310

r/ Revised.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes metal powder.

3/ Data may include other cobalt materials.

4/ Data based on monthly reports.

5/ Includes annual reports.

TABLE 2
U.S. REPORTED CONSUMPTION OF COBALT, BY END USE 1/

(Metric tons, contained cobalt)

End use	1998			1999	
	January- October	January- December 2/	Year 3/	October	January- October
Steel:					
Stainless and heat resisting	32	38	38	3	32
Tool	W	W	96	W	W
Superalloys	3,120	3,770	4,110	334	3,320
Alloys (excludes steels and superalloys):					
Magnetic alloys	612 r/	721	771	59	621
Other alloys 4/	W	375	421	W	W
Cemented carbides 5/	712 r/	843	844	53	564
Chemical and ceramic uses:					
Catalysts	W	W	W	W	W
Driers in paints or related usage	W	W	W	W	W
Ground coat frit	W	W	W	W	W
Pigments	W	W	W	W	W
Miscellaneous and unspecified 6/	2,810 r/	2,960	2,900	246	2,780
Total	7,290 r/	8,710	9,180	695	7,310

r/ Revised. W Withheld to avoid disclosing company proprietary data; included with "Miscellaneous and unspecified."

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Data based on monthly reports.

3/ Includes annual reports.

4/ Includes nonferrous alloys, welding materials, and wear-resistant alloys.

5/ Includes diamond bit matrices, cemented and sintered carbides, and cast carbide dies or parts.

6/ Includes feed or nutritive additive, full-alloy steel, glass decolorizer, mill products made from metal powder, and data indicated by the symbol "W."

TABLE 3
U.S. REPORTED STOCKS OF COBALT MATERIALS 1/

(Metric tons, contained cobalt)

Period	Industry 2/ Oxide and other chemical compounds 5/				U.S. Government, 3/ metal
	Metal 4/		Scrap	Total	
1998:					
October	349	251	96	696	14,900
November	339	260	90	690	14,800
December 6/	338	285	88	712	14,700
Yearend 7/	356	306	89	750	14,700
1999:					
January	357	223	128	709	14,700
February	330	203	128	661	14,600
March	318	195	129	641	14,400
April	316	195	127	638	14,200
May	319	226	129	675	14,100
June	315	213	138	666	13,800
July	351	215	132	698	13,600
August	329	203	131	663	13,400
September	341 r/	211	126	677 r/	13,300
October	348	246	128	722	13,300

r/ Revised.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Stocks reported by cobalt processors and consumers.

3/ Data from Defense Logistics Agency. Includes material committed for sale pending shipment.

4/ Includes metal powder.

5/ Data may include other cobalt materials.

6/ Data based on monthly reports.

7/ Includes annual reports.

TABLE 4
U.S. IMPORTS FOR CONSUMPTION OF COBALT, BY COUNTRY 1/

(Kilograms, gross weight of material, except as noted)

Period and country of origin	Metals 2/		Oxides and hydroxides		Salts and compounds 3/		Total cobalt content for the month 5/	Cobalt content, year to date 5/ 6/
	Quantity	Value 4/	Quantity	Value 4/	Quantity	Value 4/		
1998:								
September	503,000	\$21,900,000	109,000	\$3,860,000	43,400	\$438,000	594,000	5,790,000
October	550,000	22,500,000	93,400	3,120,000	172,000	1,570,000	663,000	6,460,000
November	524,000	19,200,000	155,000	4,440,000	37,300	397,000	645,000	7,100,000
December	466,000	14,500,000	76,000	1,950,000	174,000	2,430,000	567,000	7,670,000
January-December	6,450,000	284,000,000	1,210,000	41,500,000	1,310,000	13,600,000	7,670,000	XX
1999:								
January	605,000	16,200,000	160,000	3,810,000	70,800	529,000	739,000	739,000
February	528,000 7/	12,800,000 7/	81,100	1,570,000	55,900	430,000	601,000	1,340,000
March	736,000	25,200,000	97,400	2,650,000	33,000	217,000	815,000	2,160,000
April	735,000	23,000,000	129,000	3,720,000	72,200	599,000	847,000	3,000,000
May	514,000	16,200,000	88,500	2,330,000	126,000	931,000	611,000	3,610,000
June	798,000	26,200,000	128,000	3,370,000	153,000 7/	950,000 7/	940,000	4,550,000
July	535,000	21,300,000	81,000	2,230,000	147,000	1,330,000	633,000	5,190,000
August	278,000	11,100,000	76,200	2,290,000	166,000	1,350,000	378,000	5,560,000
September:								
Belgium	950	49,700	24,500	814,000	--	--	18,600	251,000
Brazil	--	--	--	--	--	--	--	168,000
Canada	30,200	1,090,000	--	--	227	5,080	30,300	604,000
China	--	--	--	--	700	18,100	322	13,000
Congo (Kinshasa)	117,000	4,520,000	--	--	--	--	117,000	800,000
Finland	106,000	4,490,000	52,300	1,400,000	224,000	1,820,000	204,000	1,490,000
France	313	26,200	4,180	207,000	--	--	3,320	39,300
Germany	4,070	179,000	--	--	--	--	4,070	51,200
India	--	--	--	--	--	--	--	76
Japan	639	37,800	--	--	--	--	639	18,100
Korea, Republic of	138	10,400	--	--	--	--	138	307
Netherlands	--	--	--	--	--	--	--	7,990
Norway	124,000	4,730,000	--	--	--	--	124,000	1,190,000
Russia	101,000	3,610,000	--	--	--	--	101,000	628,000
South Africa	500	48,600	--	--	--	--	500	5,010
United Kingdom	--	--	302	29,900	500	4,550	352	173,000
Zambia	92,900	3,660,000	--	--	--	--	92,900	820,000
Total	578,000	22,500,000	81,300	2,460,000	225,000	1,850,000	696,000	6,260,000

XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Unwrought cobalt, excluding alloys; includes cobalt cathode and cobalt metal powder.

3/ Includes cobalt acetates, cobalt carbonates, cobalt chlorides, and cobalt sulfates.

4/ Customs value.

5/ Estimated from gross weights.

6/ Year to date may include revisions to prior months.

7/ All or part of these data have been referred to the Bureau of the Census for verification.

Source: Bureau of the Census, with adjustments by the U.S. Geological Survey.

TABLE 5
U.S. IMPORTS FOR CONSUMPTION OF ADDITIONAL COBALT MATERIALS, BY COUNTRY 1/

(Kilograms, gross weight of material, except as noted)

Period and country of origin	Unwrought cobalt alloys		Other cobalt: matte, waste and scrap 2/		Wrought cobalt and cobalt articles	
	Quantity	Value 3/	Quantity	Value 3/	Quantity	Value 3/
1998:						
September	39,700	\$1,550,000	97,100	\$1,430,000	8,710	\$682,000
October	72,300	1,860,000	76,700	667,000	8,660	764,000
November	9,710	629,000	250,000	2,360,000	14,900	747,000
December	28,400	1,240,000	14,900	225,000	27,700	901,000
January-December	315,000	11,600,000	857,000	10,800,000	217,000	11,300,000
1999:						
January	23,100	1,300,000	9,610 4/	535,000 4/	18,100	946,000
February	29,400	1,330,000	28,900 4/	826,000 4/	13,000	765,000
March	10,600	740,000	54,500 4/	991,000 4/	29,200	1,020,000
April	50,400	1,670,000	74,100 4/	1,150,000 4/	16,100	651,000
May	40,000	493,000	27,900 4/	539,000 4/	11,200	723,000
June	2,290	129,000	40,600 4/	855,000 4/	16,200	710,000
July	3,450	126,000	94,800 4/	1,650,000 4/	17,800	772,000
August	4,720	165,000	34,200 4/	1,430,000 4/	6,710	591,000
September:						
Australia	5,120	134,000	--	--	--	--
Belgium	3,100	95,900	58 4/	2,880 4/	4,210	52,300
Canada	67	4,170	17,000 4/	180,000 4/	3,340	246,000
Congo (Kinshasa)	89,700	2,960,000	--	--	--	--
France	100	14,400	3,700 4/	298,000 4/	--	--
Germany	--	--	--	--	1,080	57,600
Israel	--	--	--	--	487	3,900
Japan	477	26,600	--	--	148	114,000
Sweden	1,610	40,300	226	3,210	--	--
Switzerland	--	--	--	--	3	9,920
United Kingdom	--	--	5,600 4/	80,700 4/	3,440	203,000
Total	100,000	3,280,000	26,500	565,000	12,700	686,000

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes other intermediate products of cobalt metallurgy; may include other cobalt-bearing materials from which cobalt is extracted, or from which cobalt-containing chemical compounds are manufactured.

3/ Customs value.

4/ All or part of these data have been referred to the Bureau of the Census for verification.

Source: Bureau of the Census, with adjustments by the U.S. Geological Survey.

TABLE 6
U.S. EXPORTS OF COBALT MATERIALS 1/

(Kilograms, gross weight of material, except as noted)

Period	Unwrought cobalt, powders, matte, waste and scrap 2/		Oxides and hydroxides		Salts and compounds 3/		Total cobalt content for the month 5/	Cobalt content, year to date 5/ 6/
	Quantity	Value 4/	Quantity	Value 4/	Quantity	Value 4/		
1998:								
September	127,000	\$3,480,000	54,400	\$624,000	40,700	\$275,000	176,000	1,320,000
October	49,000	2,530,000	61,900	1,150,000	55,100	203,000	107,000	1,430,000
November	64,600	2,670,000	29,700	579,000	25,500	261,000	92,100	1,520,000
December	118,000	3,300,000	30,000	461,000	76,000	281,000	158,000	1,680,000
January-December	1,140,000	43,400,000	533,000	11,300,000	674,000	4,140,000	1,680,000	XX
1999:								
January	25,600	1,090,000	35,100 7/	420,000 7/	11,800	96,500	53,700	53,700
February	56,000	2,320,000	37,200	465,000	9,500	93,500	85,100	139,000
March	78,900	3,210,000	46,200	853,000	47,300	338,000	123,000	262,000
April	105,000	3,840,000	36,600	521,000	38,500	377,000	141,000	403,000
May	240,000	7,040,000	30,600	545,000	11,900 7/	150,000 7/	265,000	667,000
June	109,000	3,530,000	24,100 7/	231,000 7/	7,320	88,300	128,000	796,000
July	64,700	3,120,000	20,000	277,000	25,200	184,000	85,100	881,000
August	59,500	1,990,000	35,900	554,000	23,200	240,000	90,900	972,000
September	82,300	2,450,000	21,100 7/	394,000 7/	14,700	165,000	101,000	1,070,000

XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ May include other intermediate products of cobalt metallurgy, and unwrought cobalt alloys.

3/ Cobalt acetates and cobalt chlorides.

4/ Free alongside ship (f.a.s.) value.

5/ Estimated from gross weights.

6/ Year to date may include revisions to prior months.

7/ All or part of these data have been referred to the Bureau of the Census for verification.

Source: Bureau of the Census, with adjustments by the U.S. Geological Survey.

TABLE 7
U.S. EXPORTS OF WROUGHT COBALT, COBALT ORE, AND CONCENTRATES 1/

(Kilograms, gross weight of material, except as noted)

Period	Wrought cobalt and cobalt articles		Cobalt ore and concentrates	
	Quantity	Value 2/	Quantity	Value 2/
1998:				
September	170,000	\$5,910,000	454	\$5,140
October	30,400	2,090,000	--	--
November	46,300	2,800,000	733	47,800
December	36,400	2,130,000	--	--
January-December	667,000	33,900,000	128,000	3,500,000
1999:				
January	24,200	1,480,000	31,400 3/	457,000 3/
February	45,000	2,460,000	14,500 3/	29,500 3/
March	80,000	2,050,000	76,200 3/	94,300 3/
April	54,300	2,410,000	434 3/	3,900 3/
May	40,600	2,170,000	21,900 3/	254,000 3/
June	61,300	3,130,000	10,300 3/	333,000 3/
July	31,900	2,200,000	63,000 3/	768,000 3/
August	37,400	1,820,000	13,600 3/	438,000 3/
September	25,000	1,730,000	--	--

1/ Data are rounded to three significant digits.

2/ Free alongside ship (f.a.s.) value.

3/ All or part of these data have been referred to the Bureau of the Census for verification.

Source: Bureau of the Census, with adjustments by the U.S. Geological Survey.